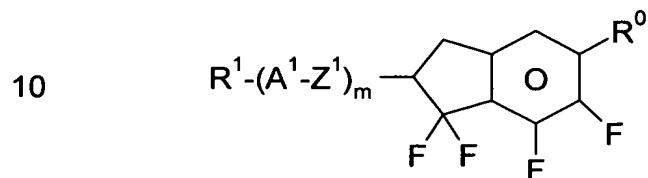



Patent Claims

1. Liquid-crystalline medium based on a mixture of polar compounds having negative dielectric anisotropy, characterised in that it comprises at least one compound of the formula I



in which

15 R^0 and R^1 each, independently of one another, denote H, an alkyl or alkenyl radical having up to 15 C atoms which is unsubstituted, monosubstituted by CN or CF_3 or at least monosubstituted by halogen, where, in addition, one or more CH_2 groups in these radicals may be replaced by -O-, -S-, , $-C\equiv C-$, -OC-O- or -O-CO- in such a way that O atoms are not linked directly to one another,

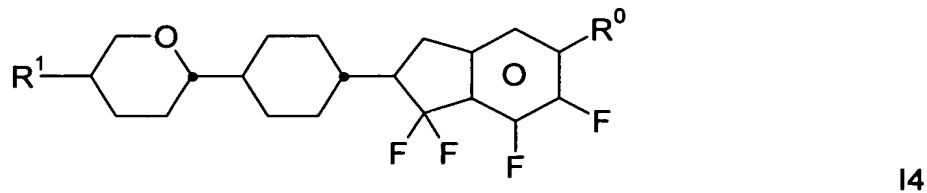
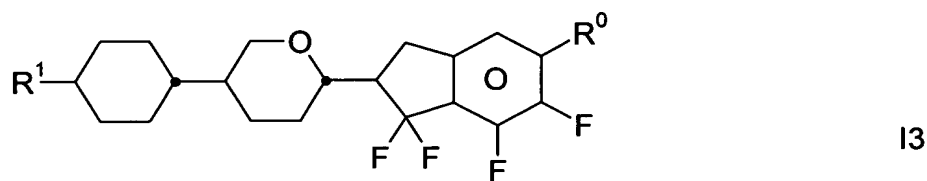
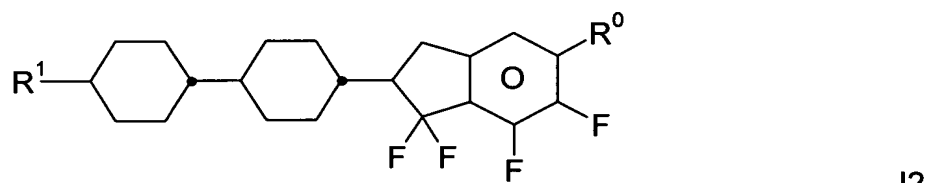
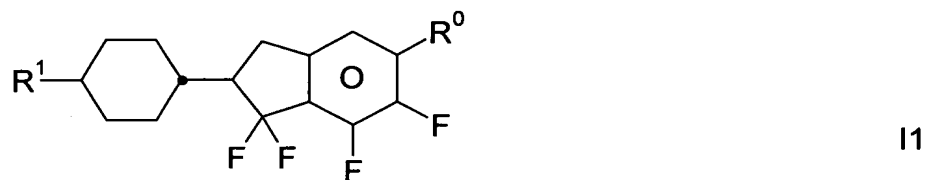
- 25 A^1 a) denotes a 1,4-cyclohexenylenyl or 1,4-cyclohexylenyl radical, in which one or two non-adjacent CH_2 groups may be replaced by -O- or -S-,
- 30 b) denotes a 1,4-phenylene radical, in which one or two CH groups may be replaced by N,
- 35 c) denotes a radical from the group consisting of piperidine-1,4-diyl-, 1,4-bicyclo[2.2.2]octylene-, naphthalene-2,6-diyl, decahydronaphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl, phenanthrene-2,7-diyl and fluorene-2,7-diyl,

where the radicals a), b) and c) may be mono- or polysubstituted by halogen atoms,

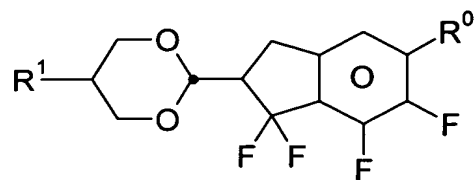
5 Z^1 denotes $-\text{CO}-\text{O}-$, $-\text{O}-\text{CO}-$, $-\text{CF}_2\text{O}-$, $-\text{OCF}_2-$, $-\text{CH}_2\text{O}-$, $-\text{OCH}_2-$, $-\text{CH}_2\text{CH}_2-$, $-(\text{CH}_2)_4-$, $-\text{C}_2\text{F}_4-$, $-\text{CH}_2\text{CF}_2-$, $-\text{CF}_2\text{CH}_2-$, $-\text{CF}=\text{CF}-$, $-\text{CH}=\text{CF}-$, $-\text{CF}=\text{CH}-$, $-\text{CH}=\text{CH}-$, $-\text{C}\equiv\text{C}-$ or a single bond, and

10 m denotes 0, 1 or 2.

2. Liquid-crystalline medium according to Claim 1, characterised in that it comprises at least one compound selected from the formulae I1 to I18

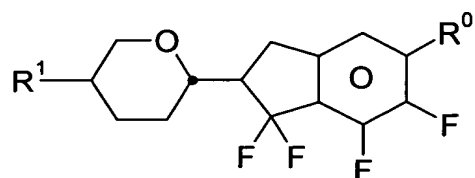


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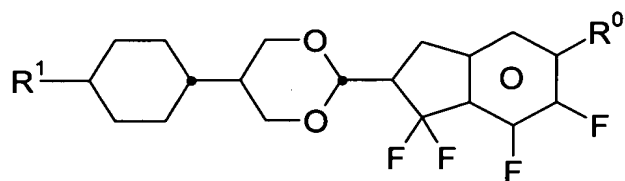
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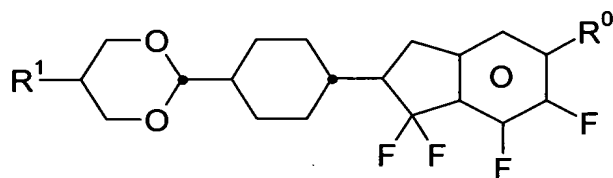
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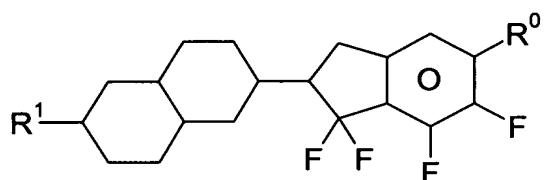
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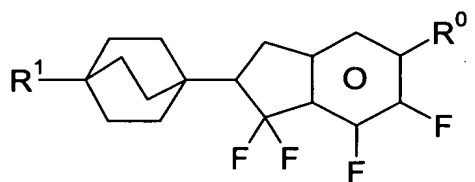
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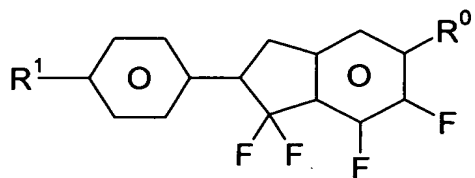
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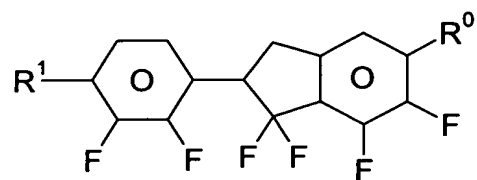
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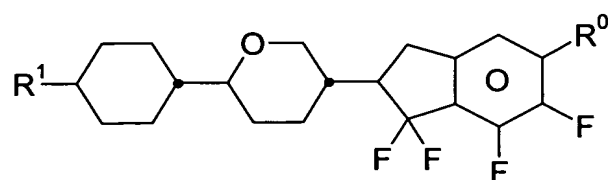
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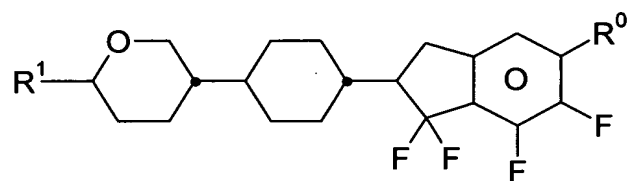
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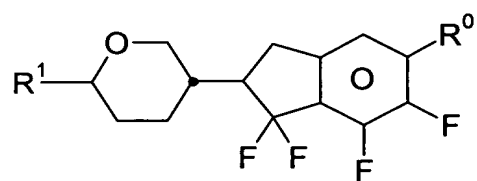
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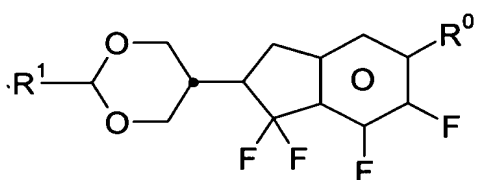
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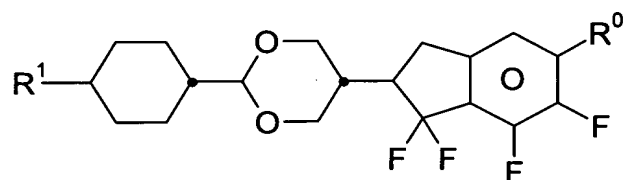
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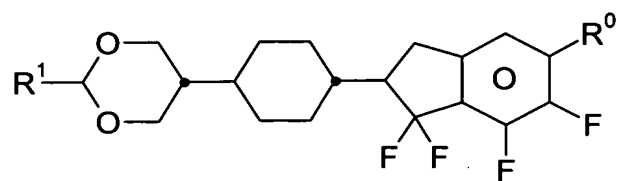
I16

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I17

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I18

in which

R^0 and R^1 have the meanings indicated in Claim 1.

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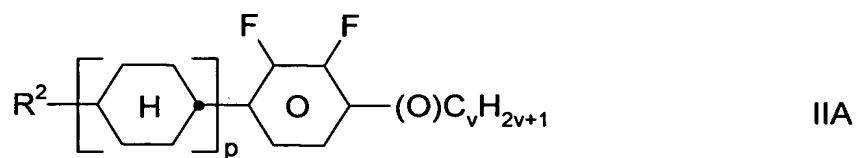
3. Liquid-crystalline medium according to Claim 1 or 2, characterised in that R^0 denotes H.

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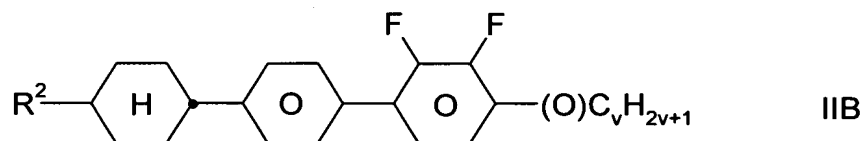
4. Liquid-crystalline medium according to Claim 2 or 3, characterised in that it comprises at least one compound of the formula I1.

5. Liquid-crystalline medium according to one of Claims 1 to 4, characterised in that it additionally comprises one or more compounds of the formulae IIA and/or IIB:

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in which

R^2 denotes an alkyl or alkenyl radical having up to 15 C atoms which is unsubstituted, monosubstituted by CN or CF_3 or at least monosubstituted by halogen, where, in addition, one or more CH_2 groups in these radicals may each be replaced, independently of one another, by $-O-$, $-S-$, $-\text{cyclohexane ring}-$, $-C\equiv C-$, $-CO-$, $-CO-O-$, $-O-CO-$ or $-O-CO-O-$ in such a way that O atoms are not linked directly to one another,

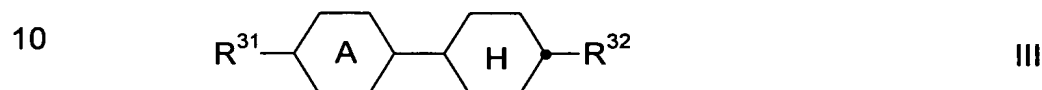
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p denotes 1 or 2, and

v denotes 1 to 6.

- 5 6. Liquid-crystalline medium according to one of Claims 1 to 5, characterised in that it additionally comprises one or more compounds of the formula III



in which

- 15 R^{31} and R^{32} each, independently of one another, denote a straight-chain alkyl, alkenyl, alkylalkoxy or alkoxy radical having up to 12 C atoms, and



7. Liquid-crystalline medium according to one of Claims 1 to 6, characterised in that it comprises one, two, three, four or more compounds of the formula I.
- 25 8. Liquid-crystalline medium according to one of Claims 1 to 7, characterised in that the proportion of compounds of the formula I in the mixture as a whole is at least 5% by weight.
- 30 9. Liquid-crystalline medium according to one of Claims 1 to 8, characterised in that the proportion of compounds of the formulae IIA and/or IIB in the mixture as a whole is at least 20% by weight.
- 35 10. Liquid-crystalline medium according to one of Claims 1 to 9, characterised in that the proportion of compounds of the formula III in the mixture as a whole is at least 5% by weight.

11. Liquid-crystalline medium according to one of Claims 1 to 10, characterised in that it essentially consists of

5 5-30 % by weight of one or more compounds of the formula I

and

10 20-70 % by weight of one or more compounds of the formulae IIA
and/or IIB.

12. Electro-optical display with active-matrix addressing based on the ECB, PALC or IPS effect, characterised in that it contains, as
15 dielectric, a liquid-crystalline medium according to one of Claims 1 to
11.

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